

Comments on the Radio Times article, published 26 November 2011

Dr Mark Brandon, Polar Oceanographer, The Open University

General comment

This is the usual tired obfuscation and generalization – but it is effective. Lord Lawson ... focuses on isolated pieces of factual evidence and then delivers them in a way to imply that his isolated facts apply to the whole cryosphere. Also particularly frustratingly he focuses on changes happening at planetary scale and implies they are relevant to the cryosphere which is what the series is about.

Finally he also... confuses timescales.

It is patronizing in tone and in my opinion an attempt to dismiss and ridicule the program. Fundamentally he is implying that the program and Sir David's view is not what he calls objective. I profusely disagree.

Episode 7 deals in facts and weight of evidence. It NEVER overstates the evidence or uses hyperbole and it is a brave and honest portrayal of what is going on right now. Reading those comments and re-examining the science behind the programmes confirmed this for me.

Individual points are on following pages.

1: SEA ICE

Had he wished to be objective, he would have pointed out that, while satellite observations do indeed confirm that the extent of arctic sea ice has been declining over the past 30 years, the same satellite observations show that, overall, Antarctic sea ice has been expanding over the same period.

Dr Mark Brandon:

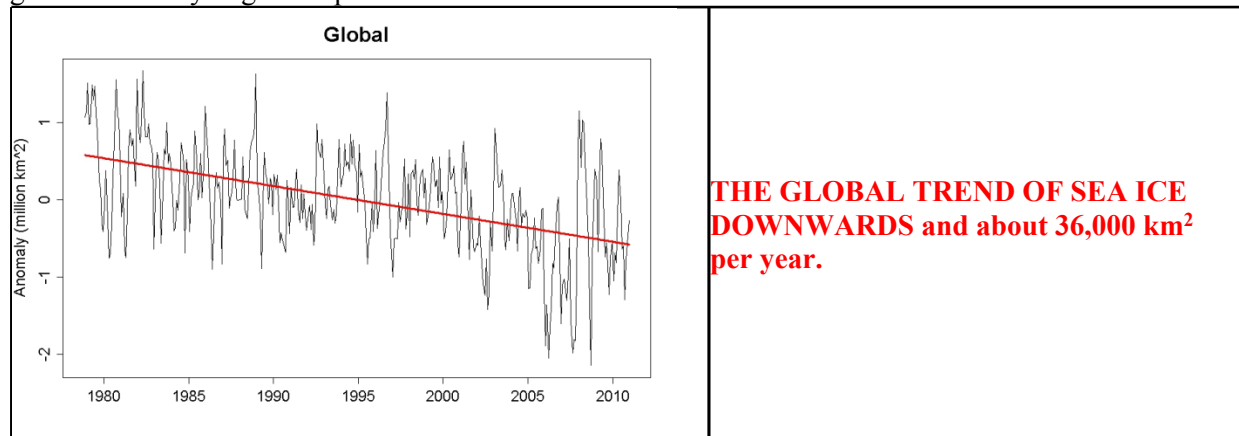
FACT: THE CHANGES IN THE ARCTIC SEA ICE ARE NOT BALANCED BY THE CHANGES IN THE ANTARCTIC SEA ICE

...Lawson is implying that he only talks about ice extent. Sir David makes it clear that **the volume of arctic sea ice is critical**. We have extremely good records of the ice thickness and ice extent. It is a fact that the extent of sea ice in the Arctic is decreasing in both thickness *and* extent - so **the volume of ARCTIC ice is decreasing** – and these changes in the Arctic are HUGE.

This is clearly portrayed in the programme.

In the Antarctic it is true that the extent of ice has increased – but by a relatively small amount and we don't know enough about the thickness to derive the volume.

If you combine the Arctic sea ice and the Antarctic sea ice changes to create a record of the total global ice then you get this picture



There has been a net loss of over a million square kilometres of global sea ice extent since satellite records began

Additional facts: The mean volume of arctic sea ice has decreased by something around 50% since the start of the satellite record.

Only this week a publication in *Nature* described the loss of Arctic sea in this way:

"The duration and magnitude of the current decline in sea ice seem to be unprecedented for the past 1,450 years"

<http://www.nature.com/nature/journal/v479/n7374/full/nature10581.html>

2. BEARS

Had he wished to be objective, he would have pointed out that the polar bear population has not been falling, but rising.

Dr Mark Brandon:

FACT: MANY BEAR POPULATIONS ARE DROPPING AS WE SAY.

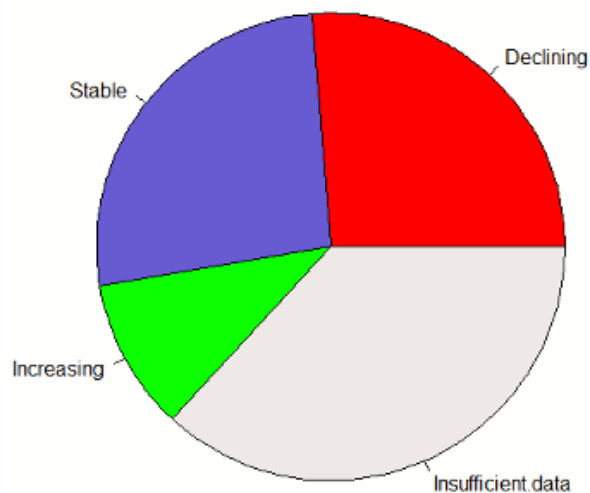
Lord Lawson is implying that Sir David says the bears are in trouble, but he doesn't of course What he actually says is

"Longer summers with no ice are probably the main reason why *many polar bear populations* are dropping"

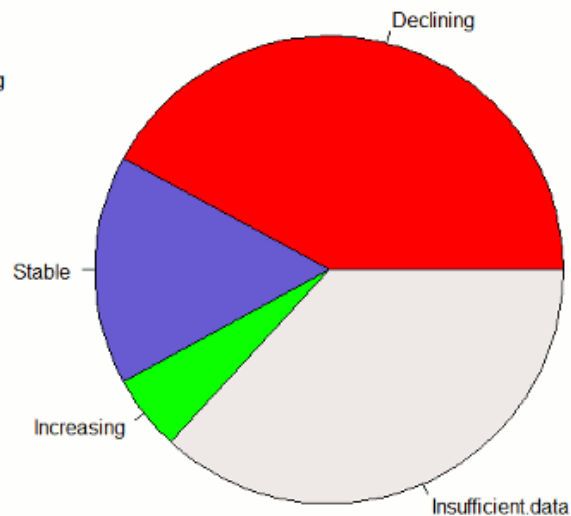
So what is happening to the bears? Different things in different parts of the Arctic but here is what the Polar Bear Specialist Group of the IUCN Species Survival Commission say about it:

In 2009 "of the 19 recognised subpopulations of polar bears, **8 are in decline**, **1 is increasing**, 3 are stable and 7 don't have enough data to draw any conclusions. Figure 1 below compares the data for 2005 and 2009.

a) Population trends of polar bears in 2005



b) Population trends of polar bears in 2009



It is clear that the area of red (bear population trend decreasing) has significantly increased from 2005 to 2009 and the area of green (bear population trend increasing) is reducing and Lord Lawson is basing his assertion on ONE bear population.

3. CLOUDS

Had he wished to be objective, he would have mentioned that recent research findings show that the increased evaporation from the Arctic ocean, as a result of warming, will cause there to be more cloud cover, thus counteracting the adverse effect he is so concerned about.

Dr Mark Brandon

FACT: CLOUD FEEDBACK IS NOT THOUGHT TO BE A STRONGLY NEGATIVE FEEDBACK SO HE IS OUTDATED AND FUNDAMENTALLY WRONG ON THIS POINT.

We never mention clouds in the program at all.... The idea is that clouds reflect the solar radiation from the planet which would mean there would be less reaching the ground to warm up. It is a nice simple idea but **this view is outdated and very likely completely wrong.**

It depends on where the clouds form. Low altitude clouds will reflect more heat (what he is saying) whereas high altitude ones trap it (which he doesn't mention). Overall **there is an increasing amount of evidence that increasing the overall cloud cover will actually increase the warming.**

4. Global Mean Temperature

Had he wished to be objective, he would have noted that, while there was indeed a modest increase in mean global temperature (of about half a degree Centigrade) during the last quarter of the 20th century, so far this century both the UK Met Office and the World Meteorological Office confirm that there has been no further global warming at all.

Dr Mark Brandon:

FACT: GLOBAL MEAN TEMPERATURE IS NOT POLAR MEAN TEMPERATURES AND IT IS INACCURATE TO QUOTE THE FORMER WHEN REFERRING TO THE LATTER

The global mean temperature is derived from averaging data from all over the planet. Some parts are warming and some are cooling. Overall the global trend is relentlessly upwards.

Focussing on a very short timescale, e.g. 10 years as Lord Lawson does, would not be an accurate reflection of the trend. So let's look at the Arctic. This is the trend of annual average Arctic temperature for a meteorological data set in the range 80-90N over the last 60 years.

The trend is approximately -32C in 1950 to approximately -25C by 2010.

THE WINTER TEMPERATURE OF THE ARCTIC HAS WARMED BY A HUGE AMOUNT SINCE 1950

